

Connecticut Department of Public Health



CONNECTICUT DEPARTMENT OF
PUBLIC HEALTH

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**Presentation at the Connecticut Hospital
Association – January 11, 2007**

CT Hospital Stroke Meeting

January 11, 2007

- Connecticut Hospital Stroke Survey Results Report
- Recommendations for the Establishment of Primary Stroke Centers
- Next Steps for Connecticut

Connecticut Department of Public Health Stroke Initiative

- Intra-agency collaboration
- External statewide partners
- Regional collaborators (NY, MA)

Stroke Centers in Neighboring States

	JCAHO Stroke Centers	State Designated Stroke Centers
Massachusetts	1	70+ (almost all)
New York	9	approx 114 (out of 239)
Connecticut	7	N/A

Connecticut Department of Public Health Stroke Center Recognition Program

- Voluntary
- Non-regulatory
- Based on established criteria used in other states
- Developed with input from hospitals and other partners

Primary Stroke Center Recommendations

Dawn Beland & Louise McCullough

Stroke Centers: What are they?

- In 2000, the Brain Attack Coalition (BAC) proposed 2 types of stroke centers: primary and comprehensive.
- A primary stroke center (PSC) has the necessary staffing, infrastructure, and programs to stabilize and treat most acute stroke patients.
- Some patients with complex stroke types, severe deficits, or multi-organ disease may require specialized care and technological resources found in a Comprehensive Stroke Center (CSC).

Brain Attack Coalition

Recommendations for PSC

- Model based on trauma
- 11 key criteria
- These criteria are mirrored in the DPH survey.
- These criteria are increasingly utilized by state agencies to certify hospitals as “stroke-centers” at the state level.

#1 Acute Stroke Teams

- The Acute Stroke Team should include a physician with experience in diagnosing and treating cerebrovascular disease, and one other healthcare provider as a minimum (not necessarily neurologists).
- Hospital-based stroke teams should be available around-the-clock, seven days a week in order to evaluate at bedside within 15 minutes any patient who may have suffered a stroke.

#2 Written Care Protocols

- Hospitals should have written procedures to streamline and accelerate the diagnosis and treatment of stroke patients.
- The availability of such protocols is a key step in reducing time to treatment and complications from treatment.

#3 Emergency Medical Services

- Emergency medical services (EMS) have a vital role in the rapid transportation and survival of stroke patients.
- Improved coordination between hospitals and EMS is a cornerstone of a PSC.
- Effective communication between EMS personnel and the stroke center during rapid transport of a patient experiencing a stroke is key.

#4 Emergency Department

- The emergency department (ED) staff should have training in diagnosing and treating stroke at least twice a year.
- The ED staff should have good lines of communication with both EMS and the acute stroke team and know how to efficiently activate the acute stroke team.

#5 Stroke Unit

- A PSC providing care beyond the hyperacute period should have access to a Stroke Unit where patients receive specialized monitoring and care (reduces complications).
- Some hospitals may choose to stabilize patients and transfer them to another facility.
- The stroke unit can be contained within another unit (ie., ICU, step-down) with specialized protocols and trained nursing staff.

#6 Neurosurgical Services

- Neurosurgical services should be available to stroke patients within two hours of when the services are deemed necessary (ie., tPA induced ICH, Hydrocephalous, etc).
- The patient could be transferred to another facility or the neurosurgeon could be on-call and be able to see the patient within 2 hours.

#7 Support of Medical Organization

- The facility and its staff, including administration, should be committed to the Primary Stroke Center model.
- This comprehensive commitment ensures the infrastructure to deliver high quality and efficient care to acute stroke patients.
- The support should also be evidenced through the designation of a medical director.

#8 Neuroimaging

- The ability to perform brain imaging studies on acute stroke patients is vital to make a fast, accurate diagnosis of stroke and determine eligibility for tPA.
- A PSC must be capable of performing an imaging study within 25 minutes of the physician's order (CT or MRI), 24/7.
- The image should be evaluated by a physician within 20 minutes of completion.

#9 Laboratory Services

- Standard laboratory services should be available 24/7 at a PSC.
- Standard laboratory services include rapidly performing and reporting complete blood counts, blood chemistries and coagulation studies.
- A PSC also should be able to rapidly obtain ECGs and chest x-rays.
- Results should be available within 45 minutes of the physician's order.

#10 Outcomes/Quality Improvement

- PSCs should have a database or registry for tracking the number and type of stroke patients seen, their treatments, timeline for treatments and some measurement of patient outcome.
- The data collection should be consistent and regularly reviewed for performance improvement opportunities.

#11 Educational Programs

- The professional staff of a PSC should receive at least eight hours per year of CME credit.
- In addition to professional education, the PSC should plan and implement at least two annual programs to educate the public about stroke prevention, diagnosis and availability for emergency treatment.

How are we at self assessment?

- PSC survey done in 2003 by Kidwell.
- 79% of the physicians surveyed (ED, neurology, and neurosurgeons) thought PSCs were needed.
- The majority of responders (81%) would like their hospital to be designated as a PSC.
- Although responders' global judgment was that 77% of hospitals currently meet all of the BAC criteria for PSCs, detailed criteria responses suggest that only 7% of hospitals actually do.

Survey Conclusions

Kidwell's Survey

- The criteria met least commonly included:
 - CME for professional stroke center staff (31%)
 - Stroke training for ED staff (21%)
 - Establishment of a stroke unit (38%)
 - Designation of stroke center director (37%)

CT DPH's Survey

- The criteria met least commonly included:
 - Continuing education for stroke center nursing staff (35%)
 - Public education programs about stroke (35%)
 - Quality improvement and outcome monitoring system (41%)
 - Establishment of an acute stroke team (52%)
 - Pre-hospital "Stroke Alert Protocol" for EMS (52%)

EMS Resources

Assess the patient using the Cincinnati Pre-Hospital Stroke Scale or FAST screen

Evaluate for:

Facial Droop



Arm Drift



Speech Impairment



And note Time of onset, time to call 911!

EMS Resources

EMS Guidelines for Stroke

1. Always ABC's!
2. Time is of the essence! Obtain history and assess patient's neuro status using FAST or Cincinnati Stroke Scale (see reverse).
3. Establish time line. Define onset of symptoms or when was the patient last seen well?
4. Check blood glucose and 12-lead EKG if possible.
5. Administer O₂, establish 18G IV access.
6. Contact C-MED or call 911, report Stroke score and time of symptom onset.
7. Transport to nearest Stroke capable center.

The "Cincinnati Pre-Hospital Stroke Scale"
Evaluate for:



Facial Droop
If present, score 1



Arm Drift
If present, score 1



Speech Impairment
If present, score 1
"Today's a sunny day."

Total score can range from 0 – 3.

Which criteria improve care?

- Four criteria predicted increased tPA usage:
 - Written care protocols
 - Integrated EMS
 - Organized and appropriately trained ED staff
 - Continuing medical and public education in stroke
- Use also tended to be greater at centers with:
 - An acute stroke team
 - A stroke unit
 - Rapid Neuroimaging
- All focus on reducing delays to treatment.

Which criteria improve care?

- Specific components shown to decrease in-hospital mortality:
 - Capacity of acute stroke team to respond within 15 minutes of being called
 - Ability of EMS to activate team directly
- Criteria shown to decrease length of stay:
 - Acute stroke teams
 - Integrated EMS

Differences between State and JCAHO certification

State

- Improve care by increasing the number of stroke patients eligible to receive IV tPA.
- All patients with suspected stroke who present within 3 hours should be considered for IV tPA.
- All patients who receive IV tPA are treated as rapidly as safe and feasible (within 60 minutes of ED arrival).

JCAHO

- Drive quality measures for stroke care and improve outcomes by utilizing disease-specific care:
- Standard methods of delivering clinical care
- Organized approach to performance measurement
- Compliance with consensus-based national standards

A Primary Motivation for Stroke Centers

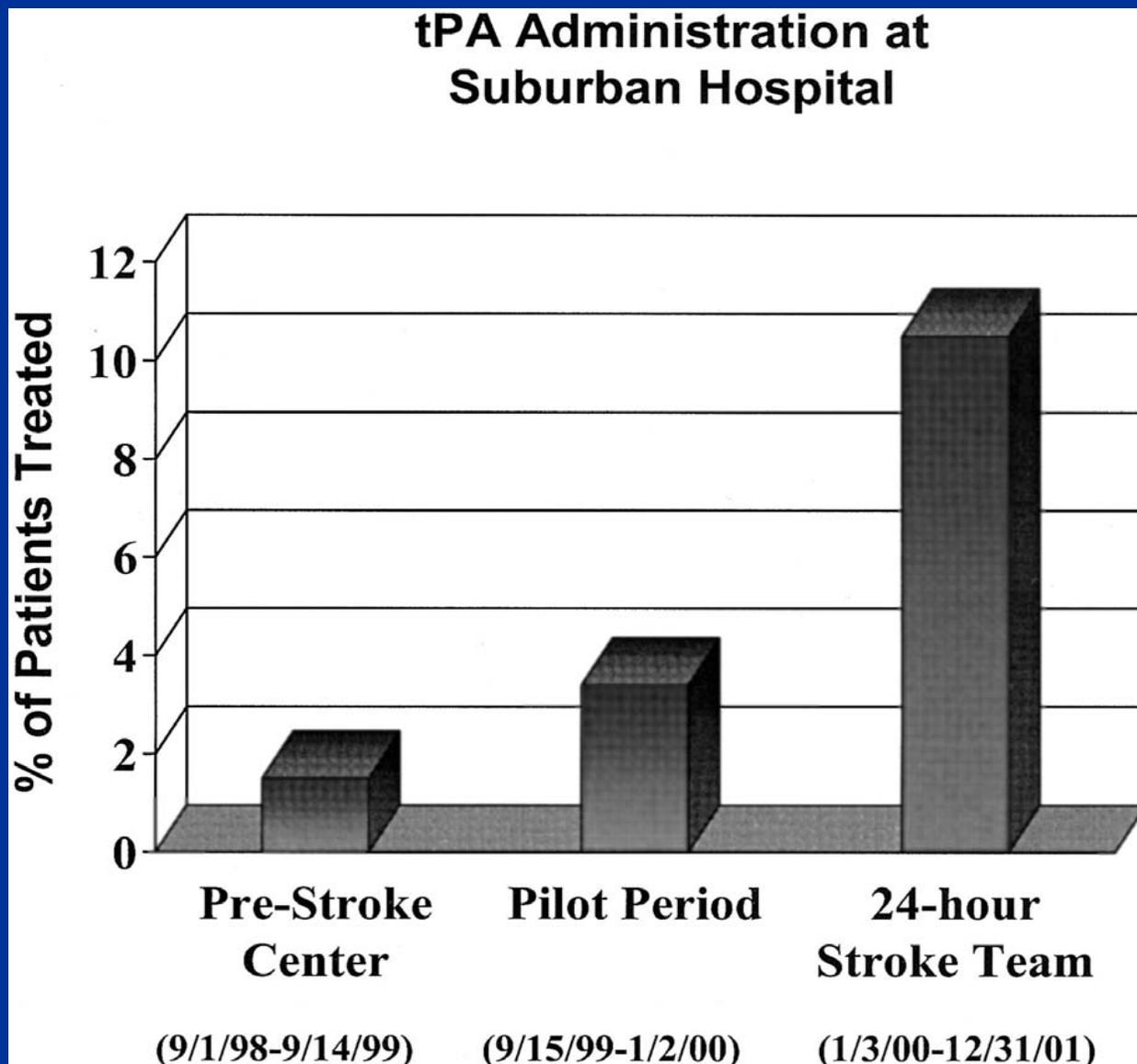
- The aging of the Baby Boomers (1946-1965)*
- By 2012, 75 million will be > 65 years old*
- By 2045 those over age 85 will increase five fold*
- Current direct (\$30.8 billion) & indirect costs (18.6 billion)**
- 44% of 43 hospitals surveyed were building specialty care centers for geriatrics***

*Profile of Older Americans (2001) US Dept. of HHS: Admin on Aging.

**2001 Heart & Stroke Statistical Update: American heart Association

***Center for Studying Health System Change; Washington DC, 2002 survey

Percentage of patients treated with tPA related to the establishment of a primary stroke center



Stroke Centers Increase tPA use

- So what? Improved rates of functional recovery with tPA use!
- Cost benefit analysis of tPA use was conducted for each state.
- In Connecticut, increasing tPA use from 2% to 15% provides a cost savings of almost \$600,000 a year.
- tPA is efficacious in clinical trials and effective in the real world, and results in a net cost savings.
- Given such a favorable economic profile, safe, effective means for increasing use of this therapy will help reduce hospital costs.

Should Your Hospital Be a Stroke Center?

- Number of stroke admissions per year:
 - If large enough, will save \$
 - If too small, not cost effective
- Must have a Director with vision and leadership skills
- Administrative commitment is KEY

Stroke Center--Levels

- Primary Stroke Centers
 - Able to provide initial, acute care
 - Able to use rt-PA and other acute therapies in a safe and efficient manner
 - Can admit patients if they have a Stroke Unit
- Comprehensive Stroke Centers
 - Able to care for complex patients
 - Advanced treatments (i.e. coils, stents, etc)
 - Trained specialists in key areas (Neurology, Neurosurgery, Neuroradiology, etc.)
 - Consults with area PSCs via telemedicine

Connecticut Department of Public Health Stroke Center Recognition Program Next Steps

- Synthesize and explore issues raised at this meeting
- Continue to seek input from NY & MA
- Convene working meetings with partners to finalize Connecticut DPH criteria
- Establish DPH Stroke Center Recognition Program (target April 2007)
- Continue to work with partners to improve emergency response and quality of care for stroke (ongoing)

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